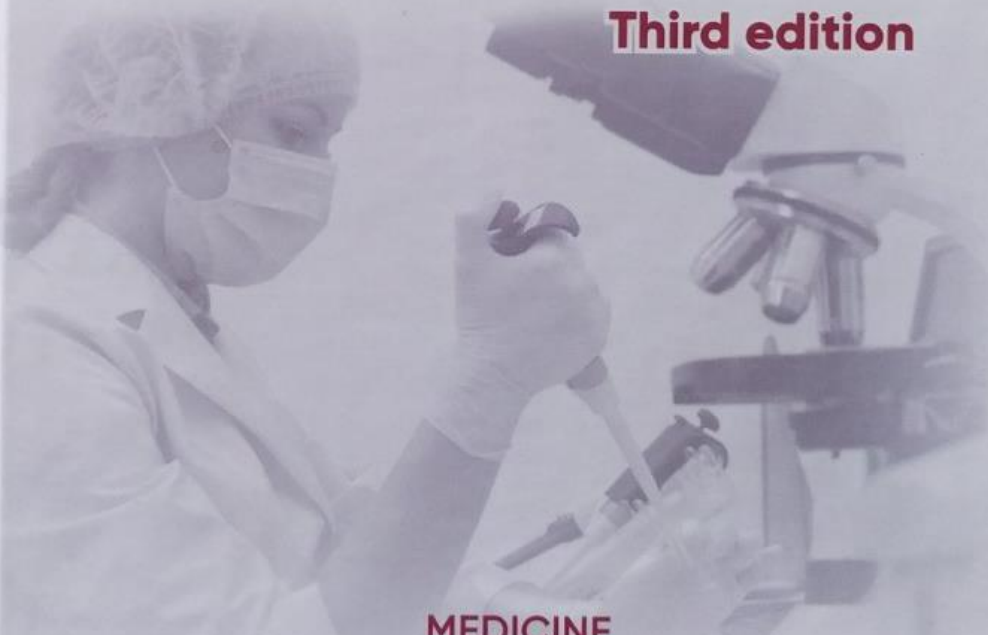


B.V. MYKHAILYCHENKO
A.M. BILIAKOV
I.G. SAVKA

Forensic MEDICINE

T E X T B O O K

Third edition



MEDICINE

WWW.MEDPUBLISH.COM.UA

B.V. MYKHAILYCHENKO
A.M. BILIAKOV
I.G. SAVKA

Forensic MEDICINE

T E X T B O O K

APPROVED

by the Ministry of Education and Science of Ukraine
as a textbook for students of higher education
establishments — medical universities, institutes
and academies

RECOMMENDED

by the Academic Board of O.O. Bohomolets
National Medical University as a textbook for
students of medical universities with English
language training

Kyiv
AUS Medicine Publishing

UDC 340.6,134
LBC 58;67.99(2)93ja73
M69

Approved by the Ministry of Education and Science of Ukraine as a textbook for students of higher education establishments — medical universities, institutes and academies (letter No. 1/11-11455, 6 December 2011)

Recommended by the Academic Board of O.O. Bohomolets National Medical University as a textbook for students of medical universities with English language training (minutes No. 12, 27 April 2017)

Authors:

B.V. Mykhailychenko, A.M. Biliakov, I.G. Savka

Reviewers:

Viktor Bachynskiy — D.M., Professor, Head of the Department of Forensic Medicine and Medical Law of Higher State Educational Establishment of Ukraine “Bukovinian State Medical University”, Chernivtsi, Ukraine;

Olexandr Gerasymenko — D.M., Professor

Mykhailychenko B.V.

M69 Forensic Medicine : textbook / B.V. Mykhailychenko, A.M. Biliakov, I.G. Savka ; edited by B.V. Mykhailychenko. — Kyiv : AUS Medicine Publishing, 2017. — 224 p.
ISBN 978-617-505-591-5

The textbook briefly highlights both the history of forensic medicine and organization and arbitration principles of forensic medical examination. Forensic and medical thanatology issues as well as diagnostics of various environmental injuries and health conditions are scrutinized in view of current scientific advancements.

The data on lager radiation injuries and information on biological factor influence on the human body are introduced.

Peculiarities of examining the injured and accused parties and other persons are described according to the Criminal Code of Ukraine.

Current possibilities of forensic medical examination of material evidence are considered.

Legal aspects of health care provision and legal responsibilities of physicians as health care providers for malpractice are provided according to the Criminal Code of Ukraine.

All the chapters end with a list of questions for self-control.

For students of higher medical education institutions, as well as for internship doctors and beginners at forensic medical expert examination.

UDC 340.6,134
LBC 58;67.99(2)93ja73

ISBN 978-617-505-591-5

© B.V. Mykhailychenko, A.M. Biliakov,
I.G. Savka, 2017
© AUS Medicine Publishing, design, 2017

CONTENTS

| | |
|---|----|
| CHAPTER 1. Forensic Medicine as a Science. History of Forensic Medicine | |
| Development (B.V. Mykhailychenko) | 7 |
| 1.1. Definition, Contents, Tasks and Role of Forensic Medicine | 7 |
| 1.2. Historic Overview of Forensic Medicine Development..... | 8 |
| CHAPTER 2. Procedural and Organizational Basics of Forensic Medical | |
| Examination (B.V. Mykhailychenko) | 13 |
| 2.1. General Information about Forensic Medical Examination..... | 13 |
| 2.2. Participation of a Forensic Medical Expert in Examination | 15 |
| 2.3. Structure of Forensic Medical Service | 17 |
| 2.4. Forensic Medical Documentation..... | 20 |
| CHAPTER 3. Forensic Medical Inspection of a Scene of Incident and Corpse | |
| (I.G. Savka) | 22 |
| 3.1. The Site of an Incident and its Inspection: General Notions | 22 |
| 3.2. Detection, Fixation, Taking Blood Traces During Inspection of a Scene of an Incident..... | 26 |
| 3.3. Taking Other Biological Objects..... | 27 |
| 3.4. Documents Prepared During On-site Inspection of an Incident..... | 29 |
| CHAPTER 4. Forensic Medical Thanatology (B.V. Mykhailychenko) | 30 |
| 4.1. General Information about Dying and Death..... | 30 |
| 4.2. Forensic Medical Classification of Death | 32 |
| 4.3. Forensic Medical Aspects of Organ and Tissue Transplantation..... | 33 |
| 4.4. Forensic Medical Diagnosis of Death..... | 34 |
| 4.5. Determination of the Time of Death | 44 |
| CHAPTER 5. Forensic Medical Examination of a Corpse (I.G. Savka) | 45 |
| 5.1. Forensic Medical Examination of a Corpse: General Information | 45 |
| 5.2. The Order to Conduct Forensic Medical Examination of a Corpse | 46 |
| 5.3. External Examination..... | 47 |
| 5.4. Internal Examination | 50 |
| 5.5. Peculiarities of Examination of an Unknown Person..... | 54 |
| 5.6. Taking of the Material for Laboratory Examination | 55 |
| 5.7. Official Registration of the Results of Forensic Medical Examination of a Corpse..... | 59 |

| | |
|--|-----------|
| CHAPTER 6. Forensic Medical Examination in Case of Sudden Death | |
| (<i>A.M. Biliakov</i>)..... | 62 |
| 6.1. General Information about Sudden Death..... | 62 |
| 6.2. Forensic Medical Examination in Case of Different Types of Sudden Death ... | 63 |
| 6.3. Sudden Death in Childhood | 67 |
| 6.4. Sudden Death under Peculiar Circumstances | 68 |
| CHAPTER 7. Forensic Medical Examination of Newborn Corpses | |
| (<i>B.V. Mykhailychenko</i>) | 69 |
| 7.1. Peculiar Features of Forensic Medical Examination of Newborn Corpses | 69 |
| 7.2. Determination of Neonatality | 71 |
| 7.3. Determination of Full-Term and Mature Newborn..... | 72 |
| 7.4. Determination of Newborn Viability..... | 72 |
| 7.5. Determination of Live-Born Fetus..... | 73 |
| 7.6. Causes of Death of Newborns..... | 74 |
| CHAPTER 8. Forensic Medical Traumatology (<i>A.M. Biliakov</i>) | 76 |
| 8.1. Injury Classification and Peculiarities | 76 |
| 8.2. Blunt Object Injuries | 77 |
| 8.3. Traumatism and its Types | 84 |
| 8.4. Transportation Traumatism..... | 84 |
| 8.5. Sharp Object Traumas..... | 90 |
| 8.6. Clothes Damage in case of Obtuse and Sharp Object Traumas | 95 |
| CHAPTER 9. Forensic Medical Expertise of Gunshot Injuries (<i>I.G. Savka</i>)..... | 97 |
| 9.1. Firearms and the Mechanism of Shot: General Notion..... | 97 |
| 9.2. Bullet Entrance Wound due to the Shot from a Distant Range..... | 103 |
| 9.3. Bullet Entrance Wound due to the Shot from a Close Range | 104 |
| 9.4. Bullet Entrance Wound due to Contact Range of Shot | 107 |
| 9.5. Bullet Exit Wound..... | 108 |
| 9.6. Firearm Wound Canal..... | 109 |
| 9.7. Firearm Wounds from Hunting Arms | 112 |
| 9.8. Shot Injuries..... | 113 |
| 9.9. Firearm Damages of the Clothes..... | 116 |
| 9.10. Suicide Signs with the Use of Firearms..... | 117 |
| 9.11. Injuries after Blank Cartridges..... | 118 |
| 9.12. Injuries after Pneumatic Arms..... | 118 |
| 9.13. Peculiarities of Injuries Caused by Devices for Shooting Cartridges Supplied with Rubber or Analogical by Their Properties Missiles of a Survivable Exposure | 119 |
| 9.14. Explosive Injury..... | 120 |
| 9.15. Laboratory Methods of Examination in Case of Gunshot Wounds..... | 122 |
| 9.16. Causes of Death due to Mechanical Injury | 123 |
| 9.17. Detection of the Vital Origin and Time of Injuries | 127 |
| CHAPTER 10. Injuries From Low and High Temperature Effect | |
| (<i>B.V. Mykhailychenko</i>) | 131 |
| 10.1. The Local Effect of the High Temperature | 131 |
| 10.2. The General Effect of the High Temperature (Overheating)..... | 134 |

| | |
|--|------------|
| 10.3. The Local Effect of the Low Temperature | 135 |
| 10.4. The General Effect of the Low Temperature | 135 |
| CHAPTER 11. Injuries and Death from Atmospheric Pressure Changes (<i>B.V. Mykhailychenko</i>) | 138 |
| 11.1. The General Effect of the Increased Atmospheric Pressure on the Body | 138 |
| 11.2. The General Effect of the Decreased Atmospheric Pressure on the Body | 140 |
| CHAPTER 12. Forensic Medical Examination of Electrical Injuries (<i>B.V. Mykhailychenko</i>) | 142 |
| 12.1. General Information on Electrical Injuries | 142 |
| 12.2. The Characteristics of the Electric current Effect | 143 |
| 12.3. Diagnostics of Death from the Technical Electricity Effect | 144 |
| 12.4. Damage from the Atmospheric Electricity Effect | 146 |
| CHAPTER 13. Forensic Medical Examination of the Radiation Trauma (<i>B.V. Mykhailychenko</i>) | 147 |
| 13.1. The General Effect of Ionizing Radiation | 147 |
| 13.2. The Specifics of the Forensic Medical Examination | 149 |
| 13.3. Forensic Medical Examination of the Laser Injuries | 152 |
| CHAPTER 14. Forensic Medical Examination in Case of Mechanical Asphyxia Death (<i>A.M. Biliakov</i>) | 154 |
| 14.1. General Information about Oxygen Starvation and Its Course | 154 |
| 14.2. Forensic Medical Diagnosis of Mechanical Asphyxia | 155 |
| 14.3. Hanging | 156 |
| 14.4. Ligature Strangulation | 160 |
| 14.5. Throttling | 160 |
| 14.6. Closing of Mouth and Nostrils | 161 |
| 14.7. Choking | 161 |
| 14.8. Drowning | 163 |
| 14.9. Squeezing of Chest and Abdomen | 165 |
| 14.10. Asphyxia in a Limited (Closed) Space | 166 |
| CHAPTER 15. Forensic Medical Toxicology (<i>A.M. Biliakov</i>) | 167 |
| 15.1. Overview on Poisons and Poisoning | 167 |
| 15.2. Forensic Medical Diagnostics of Death Caused by Poisons of Local Action | 168 |
| 15.3. Forensic Medical Diagnostics of Death Caused by Blood Poisons | 169 |
| 15.4. Forensic Medical Diagnostics of Death Caused by Destructive Poisons | 170 |
| 15.5. Forensic Medical Diagnostics of Death Caused by Functional Poisons | 170 |
| 15.6. Forensic Medical Diagnostics of Death Caused by Narcotic Substances | 173 |
| 15.7. Food Toxins (Food Poisons) | 178 |
| CHAPTER 16. Forensic Medical Diagnosis of Health Disorders Caused by a Biological Environmental Factor (<i>B.V. Mykhailychenko</i>) | 179 |
| 16.1. General Information on Biological Environmental Factors | 179 |
| 16.2. Infectious Effect of Biological Factors | 180 |
| 16.3. Prion Infection and Its Peculiar Features | 180 |
| 16.4. Biological Effect of Antigens | 181 |
| 16.5. Peculiarities of Forensic Medical Examination | 182 |

| | |
|--|------------|
| CHAPTER 17. Forensic Medical Examination of Crime Victims, Accused and Other Persons (A.M. Biliakov) | 183 |
| 17.1. Reasons and Procedure of Examination..... | 183 |
| 17.2. Forensic Medical Examination to Determine the Severity of Bodily Injuries..... | 184 |
| 17.3. Forensic Medical Examination of Health State, Simulation, Aggravation, Self-inflicted Injuring..... | 187 |
| 17.4. Determination of Age..... | 189 |
| CHAPTER 18. Forensic-Medical Expertise in Case of Disputable Sexual Conditions and Sexual Crimes (I.G. Savka) | 191 |
| 18.1. Peculiarities of Expertise Concerning Disputable Sexual Conditions..... | 191 |
| 18.2. Detection of Sex..... | 193 |
| 18.3. Detection of Sexual Maturity..... | 194 |
| 18.4. Detection of Rupture of Hymen Integrity..... | 195 |
| 18.5. Detection of Sexual Reproductive Ability..... | 196 |
| 18.6. Detection of the Term of Previous Labour (Past Deliveries)..... | 197 |
| 18.7. Detection of the Term of Previous Miscarriage (Abortion)..... | 197 |
| 18.8. Forensic Expertise of Sexual Crimes..... | 198 |
| CHAPTER 19. Forensic Medical Examination of Material Evidence (B.V. Mykhailychenko) | 201 |
| 19.1. Blood Examination..... | 201 |
| 19.2. Examination of Hair..... | 209 |
| 19.3. Examination of Semen..... | 211 |
| 19.4. Examination of Human Organs, Tissues and Some Secretions..... | 213 |
| CHAPTER 20. Forensic Medical and Criminalistic Methods of Examination (B.V. Mykhailychenko) | 215 |
| 20.1. Measurement Methods..... | 215 |
| 20.2. Photographic Methods..... | 216 |
| 20.3. Optical Methods..... | 216 |
| 20.4. Radiological Methods..... | 216 |
| 20.5. Examination in Extreme Spectrum Rays and Luminescent Examination..... | 217 |
| 20.6. Determination of Object Metallization..... | 218 |
| 20.7. Examination of the Mineral Composition of Objects..... | 219 |
| 20.8. Identification Examination of the Instruments of Injury..... | 220 |
| 20.9. Identification Examination Using Bone Remains and Skull..... | 221 |

B.V. MYKHAILYCHENKO

A.M. BILIAKOV

I.G. SAVKA

Forensic MEDICINE

T E X T B O O K

The textbook briefly highlights both the history of forensic medicine and organization and arbitration principles of forensic medical examination. Forensic and medical thanatology issues as well as diagnostics of various environmental injuries and health conditions are scrutinized in view of current scientific advancements.

The data on lager radiation injuries and information on biological factor influence on the human body are introduced.

Peculiarities of examining the injured and accused parties and other persons are described according to the Criminal Code of Ukraine.

Current possibilities of forensic medical examination of material evidence are considered.

Legal aspects of health care provision and legal responsibilities of physicians as health care providers for malpractice are provided according to the Criminal Code of Ukraine.

All the chapters end with a list of questions for self-control.

For students of higher education establishments — medical universities, institutes and academies, as well as for internship doctors and beginners at forensic medical expert examination.

ISBN 978-617-505-591-5



9 786175 055915 >



AUS Medicine Publishing

WWW.MEDPUBLISH.COM.UA